

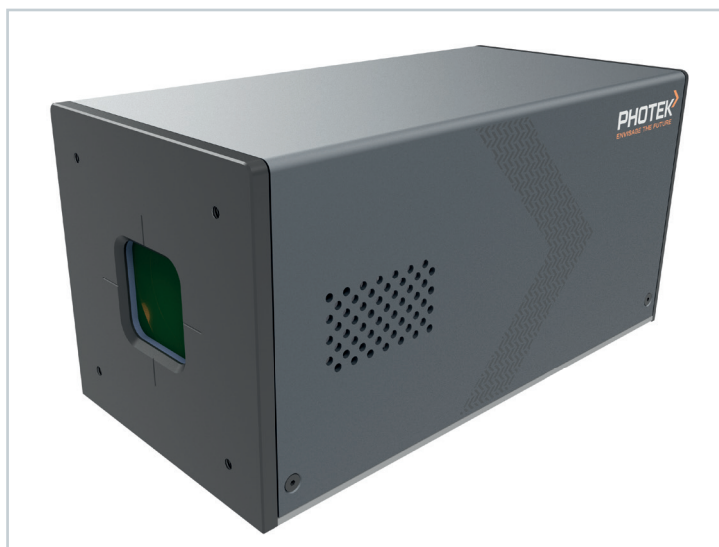


**DATASHEET**  
**DETECTORS**  
**AuraTek-PCS**

**PHOTEK**  
ENVISAGE THE FUTURE

# AuraTek-PCS

Multi-Channel Photon Counting System



**The AuraTek-PCS is an innovative, photon counting system that combines a Multi-Anode MCP-PMT with the high performance TOFPET readout electronics.**

The easy-to-use system contains 256 independent, high performance photon counting channels, each having a time stamp with 30 ps resolution and timing performance of 60 ps rms after amplitude walk correction. The system is self-triggering and event driven, with time and amplitude data provide for each photon detected.

The maximum count rate for each channel is 480 kcps, with a maximum total system count rate of about 10 Mcps. An optional user provided event identifier can be time stamped and included in the data stream by replacing one of the 256 anodes with an external input. The 160 MHz clock used by the sensor head is available to synchronize external circuits, or optionally, the user can provide their own 160 MHz clock.

A Gigabit Ethernet link (640 Mbps max data rate) makes the final connection to a data acquisition computer providing online data display and storage of raw data to disk for later processing. Software is provided to allow real-time monitoring of data and to optimize data post-processing.

## Applications

- > High Content Screening
- > Time Resolved Spectroscopy
- > Wide Field Time Correlated Single Photon Counting
- > Fluorescence Lifetime Imaging Microscopy (FLIM)
- > Forster Resonance Energy Transfer (FRET)
- > LiDAR
- > Wavelength Shifting Fibre Readout
- > Scintillating/Cherenkov Fibre Readout
- > Microplate readout
- > Beam monitor

## Customisation

Customise the AuraTek-PCS for your specific needs, including:

- > Fibre optic input window for proximity focusing
- > Multi-photon pulse readout
- > Varying pixel size and geometry

## Photocathodes

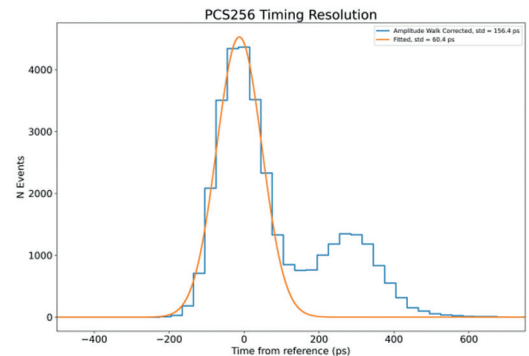
Available with any of Photek's high sensitivity photocathodes for high quantum efficiency with extremely low dark counts for optimal signal-to-noise performance.

## Product Overview

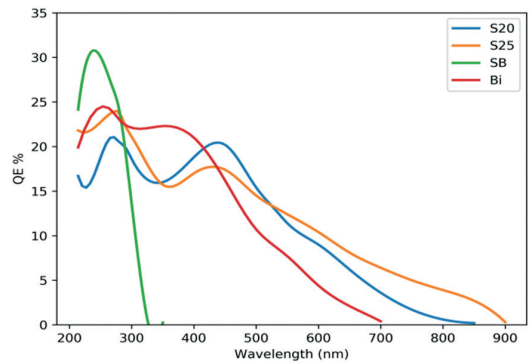
General Characteristics	
Window	Fused Silica (Optional Fibre Optic/Sapphire)
Active Area	26.5 x 26.5 mm
Electron Multiplier	Dual MCP
Anode Formats	16 x 16
Anode Pitch	1.656 mm
Photocathode	Solar Blind, Bi-Alkali, S20, S25

## Specifications

Single Photon Response	
Time Stamp Resolution	30 cps
Transit Time Spread (TTS)	Typical Pixel - 60 ps $\sigma_{rms}$
Channel Trigger Rate Max	480 kHz
Maximum Ratings	
Sensor High Voltage	< 3500 V
Average Total Count Rate	10 <sup>7</sup> cps (Averaged over detector)
Power	12 V @ 5 A
Sensor Head (W x H x D)	188 mm x 120 mm x 82 mm

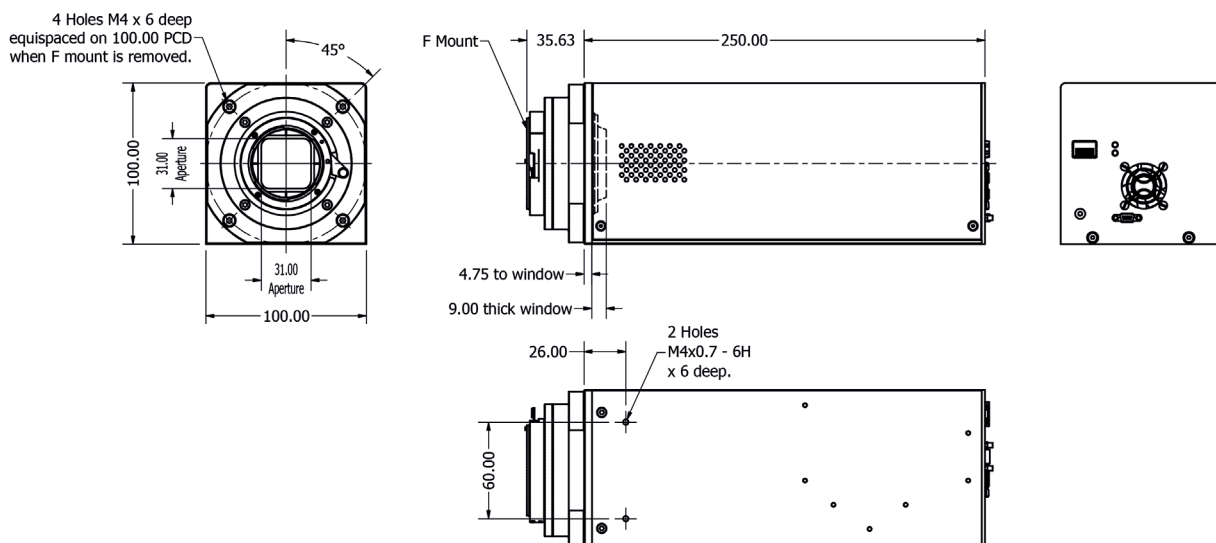


**Figure 1** : Example single photon timing resolution measured using an LPG-650 (40 ps FWHM pulsed laser).



**Figure 2** : Available photocathodes on fused silica window will reduce sensitivity and no response below 300 nm.

## Outline Drawing



**DATASHEET**  
AutoTek-PCS**About Photek**

**Photek is a specialist manufacturer of vacuum based tubes and camera systems for photon detection.**

Our product range includes; Camera Systems, Image Intensifiers, Photomultiplier Tubes, Streak Tubes plus a range of associated electronics.

We are experts in large area and ultra-high speed imaging and advanced photon counting camera systems.

Our continuing success is built upon continuous innovation and product development, and by harnessing and applying knowledge to find solutions for all of our customers' applications.

**Photek is accredited to ISO 9001 and ISO 14001.**

**Contact Us**

**Our team of specialist engineers and scientists are ready to discuss your application requirements in depth.**

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